

Title:	Utility Device for a Container of Liquid Matter
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Description

5 The present invention relates to containers for liquids such as, for example, drinks, and in particular, but not exclusively, to disposable cups and, more precisely, an upgrade of same. Such a device can be used at the same time as a stirrer, a straw, as thermal protection increasing the rigidity of the cup, and also as support for a publicity message. These elements can be easily removed from the cup one after the other, in order to mix or drink the contents
10 and possibly to conserve an information printed on the "anti-finger burning" thermal protection foil.

So far, containers for liquids in the form of cups or similar are extensively used both in vending machines and in catering (fast food, celebrations, trips, etc.)

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However, this type of cup presents not only the inconvenience of not being directly associated with a stirring means such as a stirrer (at present, stirrers are provided separately), which cannot be attached to the cup because of its large size, but also a disadvantage when a hot drink is taken, and even the impossibility of stirring without getting the drink on one's fingers
20 because of the shortness of the separate stirrer. Moreover, as one will come to understand, the rigidity of the body of the cup and its thermal conductivity are a direct function of the thickness of the plastic and/or the cardboard of which it is made, and thus of the temperature of the liquid.

25 Moreover, this type of cup also presents the major inconvenience of not being directly associated with a means that makes it unnecessary to incline the cup for drinking, such as a straw (at present, straws are provided separately), which cannot be attached to the cup because of its large size, and also a disadvantage especially when it comes to drinking while walking, without the risk of spilling the drink.

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Therefore, if one wishes the body of the cup to be holdable in spite of a hot beverage, without "burning" the user's fingers, without becoming deformed, it is necessary to increase the

thickness of the walls of the cup, which is incompatible with the size, the stackability and the disposability aspect of the cup.

Finally, this type of cup presents the major inconvenience of not allowing to conserve
5 information (printed product/service or event publicity) on a clean and dry support that
doesn't take up much space. Actually, in order to keep the information (such as the
advertiser's telephone number etc.), one has to first clean the cup and then cut out that part of
the wall of the cup on which the information is printed; this operation is both too complicated
and time-consuming for the consumer and disallows advertisers to have full benefit from the
10 commercial potential offered by the surface of the body of a cup.

The purpose of the present invention is a device for containers of liquids allowing convenient
use for various applications.

15 What is proposed is a device having the characteristics of Claim 1 as well as a container that
is equipped with such a device. Favourable characteristics are contained in the sub-claims.

In particular, the invention proposes a device for a container for liquid matter having an
essentially cylindrical shape, said device comprising means able to take on an essentially
20 oblong configuration and means able to take on an essentially flat configuration, fixedly
attached to said container in such a way as to allow each of the means able to take on an
essentially oblong configuration and the means able to take on an essentially flat
configuration to maintain a configuration that essentially follows the circumference of said
container, in order to allow stacking the device and the container in units and also
25 disassembling said means as units and selectively. In this manner it is possible to provide
utensils with a size which exceeds that of the container without any significant increase in
size and without causing a problem for stacking. The utensils can serve for multiple
applications such as, for example, dipping them in the liquid in the shape of a spatula (the
means able to take on an essentially flat configuration), or a stirrer or straw (the means able to
30 take on an essentially extended or oblong configuration)

According to one preferred embodiment, the means able to take on an essentially oblong
configuration have a profile made of plastic or cardboard, in particular a profile having a
closed or C-shaped section. One closed section allows easy use as for a straw, whereas a C-

shaped section allows easy attachment on the rim of the container which preferably is of complementary shape.

5 The means able to take on an essentially flat configuration are preferably formed out of a sheet, in particular of plastic or cardboard. This allows it to have a rigidifying function and can, moreover, allow the application of a decoration or information, since such a sheet can easily be subjected to a printing process or any other treatment such as engraving etc.

10 The means able to take on an essentially oblong configuration may comprise detent/hooking means or be in engagement with detent means in order to allow attachment on or detachment from the container, allowing use without the risk of damaging the container by removing the means in view of use.

15 According to a preferred variant, the means able to take on an essentially oblong configuration comprise at least a part favoring deformation, in particular a part with an accordion-like structure or a joint equipped with a locking system.

The means able to take on an essentially flat configuration may form or comprise a support for information. This allows to give the device an additional function, as one can conceive
20 both the application of information concerning the contents of the container and information such as advertisement messages.

Preferably, the means able to take on an essentially flat configuration have a shape that is complementary to that of the container, in order to keep the additional space requirements to a minimum. Moreover, such a structure may take on the rigidifying structures and allows
25 stacking in the case of containers with an open face such as a cup.

According to a preferred embodiment, the means able to take on an essentially oblong configuration and/or the means able to take on an essentially flat configuration are pre-stressed in one of their configurations.

30 The invention moreover also provides for a container for liquids equipped with such a device. It may be, for example, a cup such as is used in hot beverages vending machines with a device being put in place when the beverage is prepared or in a pre-assembled way.

Preferably, the container is made from material that is identical to that of at least part of the device, in particular being formed in one piece with said part. This allows a low production price and the utilization of standard food grade materials.

- 5 According to the invention, the device may therefore, in a cup application, comprise a foldable and disposable stirrer with the form of a circular arch which comprises a collar (spatula for stirring) and a handle attached to the extremity of a thermal protection foil which moreover rigidifies the body of the cup.
- 10 Thanks to this stirrer, which can be easily attached to the top of the cup, the cup is thus always, in all safety, equipped with a stirrer for sweetened drinks or, for example, drinks that need to be homogenized.

- Due to its conception and its section which may be tube-like, the same foldable stirrer which
- 15 can be integrated into or fixed to the top of the cup can ensure both the functions of a straw for drinking a beverage by suction and, for example, of a stirrer for stirring the ice cubes in a cold drink.

- According to an advantageous characteristic of the invention, the device comprises blocking, detent or hooking means which are suitable for keeping the stirrer and/or the straw in place on
- 20 the top rim of the cup.

- Therefore, since the stirrer and/or straw, and the protective foil are incorporated or clipped to keep any external space requirement on the cup to a minimum, it will be easy to understand
- 25 that the user can drink from the cup without being bothered by the utility device.

Furthermore, once the drink in the cup is finished, one just has to dispose of the cup, stirrer and/or straw.

- 30 However, the protective foil used for increasing rigidity and thermal insulation of the walls of the cup can be unhooked or unclipped from the cup without affecting the stirrer and/or straw, and then kept by the user.

This layout is very convenient to the user and simplifies manufacturing as it brings together the different components all in one piece, while maintaining the aesthetics of the cup, its compactness and light weight, and its principle of stacking with other cups.

- 5 In a bid to make the invention particularly economical and compact, and according to another particularly advantageous feature, the thermal protective and rigidifying foil is preferably made of printable food grade plastic or semi-rigid cardboard material (with food grade ink), which could bear horizontal and/or vertical grooves that are fitted to the grooves of the cup, thus increasing the thickness of the cup in an almost insignificant manner, the anchors and
10 clips being mounted at the top of the protective foil.

- The resulting very thin protective foil has proven to be very interesting not only during warehousing after manufacturing (stacking), un-stacking in automatic vending machines, but particularly also when it is used for drinking without the user's getting his end of fingers
15 burned as well as when the protective foil is kept as an information medium by the user. In fact, since the thermal protective and rigidifying foil is not bulkily shaped (for example, the format of a bank credit card), it is very easy to use and to be kept as an advertisement information in a card holder.
- 20 Besides, the fineness of the anchor systems or clips offers low resistance, which ensures a smooth and easy detachment of the anchor systems or clips and prevents entry of plastic or cardboard particles into the drink in the cup during separation of the thermal protective and rigidifying foil of the stirrer (and/or straw).
- 25 Preferably, mounting on suitable means that can take an essentially oblong configuration and/or suitable means that can take an essentially flat configuration can be done directly and/or indirectly by welding, especially at the level of the upper rim of the container or alternatively by thermoforming.
- 30 The features and advantages of the invention will become clearer through the description below, used as a non-limited example, with reference to the appended figures in which:

- Figure 1 shows an embodiment of the device according to the invention;

- Figure 2 is a view showing an alternative embodiment of the device according to the invention clipped on the cup;
- Figure 3 is a vertical cross section of the device in Figure 2 showing the stirrer and/or straw mounted on the upper part of another cup. (Note: Figure 3 is on scale 20);
- Figure 4 is an exploded view showing a sample stirrer, straw, and protective foil when the device according to a slightly modified embodiment is ready for the stirrer and/or straw to be used;
- Figure 5 is a top view of the alternative embodiment for the device according to the invention and shown as a single unit before shaping (for example thermoforming);
- Figure 6 is a view showing the shaping in an intermediary position of the embodiment in Figure 5
- Figure 7 is a vertical cross section of the device in Figures 5 and 6, showing the stirrer and/or straw mounted on the rim of stacked cups with another cup (Note: Figure 7 is on scale 20);
- Figure 8 is an exploded view showing stacking of two cups equipped with a stirrer and/or straw and protective foil;
- Figure 9 is a bottom view of an embodiment of the stirrer adapted on the cup rim;
- Figure 10 is a perspective view of the stirrer in Figure 9 positioned on the cup;
- Figure 11 is view showing a cross section of the positioning of the stirrer on the rim of the cup;
- Figure 12 is a view showing the stirrer and/or straw unfolding principle;

The cup 3 shown in Figure 2 is intended to receive a certain amount of liquid from the top of cup 9 equipped with a stirrer 6 (and/or a straw 6*bis*) and then to deliver the liquid under gravity when the rim of cup 9 is sufficiently inclined. The word liquid as used in this invention refers preferably to a hot drink. However, it may also refer to any other chilled, sweet or non-sweet drink that one would like to take.

The cup is equipped with a device 1 which makes it possible, due to its low plastic elasticity and proneness to break in specific points, to move from an assembled state (Figure 1) to a disassembled state after use (Figure 4).

According to the embodiment shown, the device 1 comprises a stirrer 6 (and/or straw 6*bis*), having a structure like an arc of a circle, which has a spatula 7 and a handle 14 engaging the two thin tabs 4 and 4' of the protective foil 2, through the hooks 5 and 12, and which is likely, as a result of the manufacturing process, to be either in a clipped position in which the tabs 4, 4', the hooks 5, 12 and the thickness of the cup 11 remain clipped, i.e. in a detached position in which the protective foil 2 is detached from the stirrer 6.

In the exemplary embodiments shown in the twelve figures, the device 1 is made out of plastic or rigid cardboard material (which may be the same material from which the actual cups are made), having low elasticity, sufficient to be slightly deformable. Preferably, the rigid material, considering its satisfactory performance during a series of trials, is a plastic or cardboard with fairly low elastic characteristics. For example, such a plastic or cardboard is thermoformable and of the same food grade like the one used in the manufacturing of disposable cups currently on the market. This plastic or cardboard also has the advantage of being easy to thermoform or mould, to be printable using food grade ink and to easily break between the hooks 5, 12 and tabs 4, 4' at the level of the breaking axes 14 and 15. In case of an embodiment of the device 1 through thermoforming following a vertical axis, the hooks and the mounting tabs will be placed in a position that is radial to the vertical axis in order to facilitate smooth breaking of the plastic or cardboard when unhooking the stirrer, the straw and the thermal protection.

Of course, without departing from the invention, the top of the protection foil 2 could be forced into the lower groove, situated in the thickness 11 of the cup rim (example of cardboard cups).

In a practical embodiment of the invention as shown in Figures 1 and 2, given that the stirrer 6 is applied to the rim of the cup 9, the tabs 4, 4' 30 and the hooks 5, 12, 31 are connected point-to-point through the breaking axes 14, 15, 32 respectively, on two diametrically opposed areas of the lower thickness 11 of the cup rim. This very balanced attachment of the stirrer can be achieved by clipping the breaking axes 14, 15, 32 into the lower groove found in the thickness 11 on the cup rim.

The attachment principle applied by the clips comprising hook 31 and the breaking axis 32 that fixes the end (spatula side) of the stirrer can be replaced by the spatula itself which is mounted under slight pre-tension.

One of the advantages of this foldable spatula is that it can be incorporated (in a closed position) without passing the upper cup rim. Consequently, no disturbance or additional space requirement is generated by the foldable spatula.

As shown in Figure 2, to make the stirrer 6 more efficient, the spatula 7 can be unfold. To make unfolding possible, the spatula 7 is split from its end to the folding point 33 (over a length of 1 to 2 cm). The spatula is thus made up of two plastic strands throughout the length of the stirrer: a rather thick strand 17 and another rather thin strand 18.

Strand 17 has a thickness that is two-thirds of the thickness 6 of the stirrer, whereas that of the strand 18 is one-third.

When unfolding the spatula, it is the thinnest strand 18 that opens to provide more surface contact to stir the drink. Due to its relatively greater thickness, the strand 17 does not move; it retains its arc of a circle position. The unfolded spatula forms a "V".

Automatic unfolding of the spatula is done simultaneously with the unclipping of the stirrer from the cup rim.

In fact, shearing of the hooks 5 and 12 at the level of the breaking points 33 and 34 frees the stirrer from the cup rim, and consequently allows the spatula to unfold. As a result of moulding under slight pre-tension of the strand 18, the strand opens automatically in a "V"

shape. The end of the strand 18 has a flat part 20 of very slight thickness which matches the shape of the upper part of the cup 9. This flat part is intended to offer a larger contact surface with the drink in order to optimize stirring of the drink.

- 5 Of course, this spatula 7 can be attached to the lower end of the straw 6.2 to stir some drinks.

Therefore, when the cup is filled with liquid, and given the attachment of the stirrer 6 to the rim of the cup 9, the stirrer 6 and/or the straw 6.2 can first be easily unclipped, then a few moments later, when the drink and the walls of the cup are colder, the protection foil 2 can be
10 unclipped from the cup rim. See Figure 4.

In order to optimize the handiness of the device, the protection foil 2 is bonded to the stirrer and/or the straw 6bis. In this way, the device can be displaced following a common axis A-A' that is perpendicular to the upper rim of the cup.

15 Thanks to this arrangement and according to a preferred characteristic of the invention, the device 1 is provided with a handle 14 which, for this purpose, can take an unclipped position in which the stirrer 6 and/or the straw 6bis2 remains in their use position (Figure 4), allowing the user to mix and drink the liquid by sucking it.

20 As can be better appreciated in Figure 1, the stirrer comprises a clip structure made up of several hooks, i. e. in the example shown, but not limited to same, of three hooks references as 5, 12 and 31, fitted through the breaking axes 15, 16 and 32 in the thickness of the cup rim 11.

25 Each hook is made up of thin tabs. In this case, hooks 5, 12, and 31 are intended to attach the stirrer to the thermal protective foil through the breaking axes. In order to ensure a more economical embodiment and optimize its functionality, said breaking axes also constitute a breaking point 18 for detaching the thermal protective foil from the stirrer. In order to first
30 release the stirrer from the cup rim, the hooks 5, 12 and 31 are sheared at the points 33 and 34 during the unclipping movement. Following this, the thin tabs 4 and 4' of the thermal protective foil are sheared at the points 18 through a "decapping" or unclipping movement of the foil.

According to a slightly modified embodiment and as shown in Figure 4, "anti-finger burning" marks 38 are provided at the foil ends symbolizing the shape of finger tips. The thin tabs 4 and 4' and the marks 38 can be easily sheared from the thermal protective foil, in order to allow the consumer keeping a personal message medium similar to the format of a bank credit card.

According to yet another important characteristic of the invention and as shown in Figure 1, the stirrer 6 and/or the straw made out of plastic or a cardboard material is in the form of an arc of a circle. According to a more advantageous and ergonomic embodiment, in order to unfold from a vertical axis, the stirrer and/or the straw has an accordion system 35. In order to maintain sufficient rigidity in a closed position, the accordion system is blocked by the very thin tabs 36 and 37. As shown in Figure 4, in order to optimize the length of the stirrer and/or the straw, after a very easy shearing of the blocking tabs 36 and 37, the two ends of the stirrer and/or the straw, having a structure like an arc of a circle on either side of the accordion system, are aligned on the vertical axis. The liquid can easily circulate inside the tubular section of the accordion system.

As illustrated in Figures 2 and 3, the device can be attached by closing the rim 11 of the cup. It should be noted that the stirrer and/or the straw can be extended only to one part of the perimeter or throughout the circumference. In the example shown in Figure 3 and in order to of ensure a perfect fitting between two cups stacked on top of one another, the stirrer and/or the straw comprises a rigidifying frame made out of a kind of peripheral padding 6 and 6bis whose thickness is less than that of the space "G" between two stacked cups. On the diagram in Figure 3, we can notice that an embodiment which provides for the use of a stirrer is shown on the upper part, whereas in the lower part provision is made for the use of a straw. Mounting of the device is done in such a way that stacking per container or device unit is possible, as is the case with ordinary cups without any device. The straw or the stirrer is now positioned on top of the cup rim, forming a clip around the rim by means of the hooks 5 or 12. The mounting is further reinforced by the presence of a breaking axis in the form of a padding 15 meshing with a slot formed by the cup rim.

In a preferred embodiment, the padding 11 of the cup rim is made out of plastic or cardboard material of the same type as that of the device itself and, as a result of its configuration, becomes harder than the protective foil 2. As will become evident, this padding has a

thickness which is slightly more than that of the protection foil. The padding serves as a dimension reference frame for the clipping of the breaking axes 15, 16 and 32.

5 In an embodiment shown in Figures 5 and 6, the device is designed in a single piece at the same time as the cup 3. Thanks to a single pattern 47 cut out from a thin plastic or cardboard foil, the cup 3 and the device 1 are thermoformed industrially and automatically (without any manual intervention) in a single run. In this way, the thermoforming and cupping principle of the cup 3 and the device 1 allows for the production of a good thickness for the different components such as the stirrer 6, the straw 6bis and the thermal protection 2. In fact, thanks to 10 this principle, the resulting stirrer 6 and straw 6bis have a thickness sufficient to provide the rigidity needed for their functionality; this thickness is almost similar to that of the original foil.

Thanks to this thermoforming (cupping) principle, the thermal protection 2 has a very slight 15 thickness which is slighter than that of the stirrer and the straw 6bis. Considering that the very thin thickness of the thermal protection 2 is similar to that of the walls of the cup 3, stacking of two cups as shown in Figure 7 is possible while strictly maintaining the same stacking interval G between the two cups.

20 As shown in Figure 7, compared to the stacking of an ordinary cup (on the left), maintaining the stacking interval G (and the slight thickness of the walls) between cups equipped with the device 1 (on the right) allows for a proper process of the stacking in automatic vending machines, without modifying the adjustments of the unstacking systems in these machines. In particular, one can clearly observe that, contrary to the previous embodiments, the straw 6bis 25 (upper part of diagram) or the stirrer (lower part of diagram) form an integral part of the cup rim and are no longer superposed as is shown in Figure 3. This arrangement allows for an even easier stacking or unstacking. It should be noted that the configuration may be obtained either during the production of the cup itself or by producing the device, for example, through welding or by using a glue. Besides, it can be clearly observed that foil perfectly fits the cup 30 structure and does not in any way obstruct its stacking.

As illustrated in Figure 6, the concave shape obtained through thermoforming and the sizing of the "anti-finger burning" marks 38 of the thin rigidifying thermal protection 2 around part of the body of the cup 3 allow this protection to properly fit the shape of the cup and eventual

grooves (horizontal or vertical). Once the thermal protection is properly applied on the body of the cup, it allows for automatic stacking of cups at a very fast rate during the manufacturing process, by not detaching itself from the body of the cup despite the air flow generated by the stacking speed of the cups.

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Again, another preferred embodiment is illustrated in Figure 8, showing a unit made up of a cup 3 and a practical device that is very similar to the shape of a sleeve. The sleeve closely fits the shape of the cup and has a detachable foil 2 with openings above to allow for easy removal. Furthermore, the sleeve is provided with an upper rim that can be fitted under the cup rim, as shown in Figure 11. This rim forms and serves at the same time as a mounting for the stirrer 6 or the straw 6bis to be attached to the cup. It should be noted that the embodiment in Figure 8 may as well be manufactured in a two-layered cup having perforations or micro-cuts at selected points in order to allow removal of the stirrer or the straw.

15 The pre-cuttings of the shapes of the stirrer 6 (including the handle 14, the spatula 7, the unhooking point 49 of the spatula and the hinge 35), the straw 6bis and thermal protection 2, including the "anti-finger burning" mark 38 and the unhooking holes 48 of the central part of the thermal protection are made during the thermoforming process of the cup 3 and the device 1 using mechanical, chemical or laser-type cutting equipment.

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For all embodiments it is possible to attach a stirrer with an "L" section comprising a horizontal part 52 that has a thickness identical to that of the original foil and which is aligned inside the extension of the folded rim 11 (see Figure 11) and a vertical part 53 that has a slighter thickness than the part 52, identical to the walls of the cup 3. As shown in figure 9, 25 the stirrer 6 is made up of two quarters of circumference 50 and 51, linked by a hinge point 35 (to point M) which has a V-shaped cutting over the horizontal part 52. The vertical part 53 is not severed. It allows on the one hand for a link between the two quarters circumference 50 and 51, and on the other hand the unfolding at an angle of 90° opposite to its curve radius. The mechanical characteristics of the plastic or carton allow for plastic deformation, in order 30 to form the hinge 35 of the vertical part 53 without breaking, as required by this unfolding, so that the handle can be displaced from point P' to point P (see Figure 12).

One of the other advantages of the embodiment principle of the stirrer in two quarters of the half circumference of the cup is that it can automatically adjust to the height of the cup,

irrespective of the volume of the cup. This will allow for cups to be fitted at the different levels of use on automatic vending machines. This advantage is of double significance. On the one hand, it provides a solution to the problem of automatic vending machines, which accept only single length stirrers, and on the other hand allows for very significant cuts on cost through the elimination, from the automatic vending machine systems, of stirrers (in addition to the cost of production of stirrers themselves) which are not very reliable in the one by one distribution of stirrers, considering the slight thickness of the stirrers.

As shown in Figure 11, it is possible to allow for an easy and ergonomic unhooking of the stirrer 6, without arranging a hooking system for the stirrer on the quarter circumference 50. In this embodiment, the section 50 is held in place on the body of the cup thanks partly to its concavity. The quarter circumference 51 of the stirrer is held in place on the body of the cup, in the extension of the cup rim 11, by the hooking system 49 mounted in a radial position (not shown in Figure 11).

As illustrated in Figure 10, the stirrer can be presented in a very specific manner with a part of handle 14 and a part of spatula 7. In this way, a customer who wishes to use the stirrer holds the handle 14 of the stirrer in order to pull it into the perpendicular axis, when moving from the point P on the BB axis to point P on the CC axis (a 90° rotation) of the Figure 12. During this movement, given that the quarter circumference 51 is maintained on a fixed position on the cup thanks to the hooking system 49, the hinge 35 of the stirrer can be blocked thanks to the blocking system 36 and 37. Given that the hinge 35 is blocked (without any significant effort), the consumer continues to pull slightly on the handle 14 in order to break the hooking system 49 which has a low resistance to breaking. As a result, the two quarter circumference 50 and 51 are aligned on the right axis CC and the stirrer 6 is ready for use in stirring a drink. The principle is the same when unhooking the straw 6bis.

Now we are going to describe the working and use of the cup by a consumer, especially in a drink automatic vending machine. For more convenience and also considering significant economic pressures, the device is embodied directly with the cup or fixed automatically (without any manual intervention) on every cup during the cup manufacturing process, meaning the cup thus reaches every consumer equipped in this manner.

The cup filled with the drink of the consumer's choice is placed in the drink automatic vending machine. The consumer can firmly take hold of the cup equipped with the thermal protection foil 2 without any risk of deforming the walls of the cup (avoiding any risk of spilling the drink), and burning finger tips with a hot drink. The consumer has the advantage of being able to take hold of the cup without any special attention. The consumer is no longer compelled to take hold of the cup by the upper rim 9 in order to avoid burning fingers.

In the case of a sweet drink for example, the consumer can take hold of the stirrer 6 by unhooking or unclipping it from the upper rim of the cup 9. The very innovative disposable stirrer of design type "two half-curves on a straight axis", equipped with a foldable spatula according to the embodiment allows for a proper mixing of the drink.

The stirrer has yet another advantage in that it can preserve the cleanliness of the cup rim 9, on the spot where the consumer places his lips. On the one hand, this stirrer allows the consumer to have a clean stirrer which has not been touched by other consumers. On the other hand, the user who does not use the stirrer can drink without having to remove the "combined system" from the top of the cup. The small size of this stirrer does not obstruct stacking of cups at the cup manufacturing factory, and in the same way does not obstruct stacking of cups in drink automatic vending machines.

Besides, to allow for easy automatic unstacking of the cups from each other and allow the cup to fall in a strictly vertical position in the filling chamber of the automatic vending machine, the stirrer 6 and the straw 6bis are placed on the half-circumference, opposite that of the thermal protection 2 (see Figure 8). This arrangement allows on the one hand for a perfect stability of the pack of cups and on the other hand, ergonomically allows consumers to hold the thermal protection 2 in all safety in one hand, and to unhook the stirrer 6 and/or the straw 6bis with the other hand.

In any case, the thermal protection 2 can easily be taken hold of (unhooked or unclipped) from the cup, without prejudice to the stirrer, when the consumer so desires.

The protective foil 2 has the advantage of having been manufactured with easily printable food grade plastic or cardboard, which can be kept by the consumer after the cup and the stirrer have been disposed. Furthermore, the surface of the protective foil 2 can be offered and

- sold as a detachable advertisement space to a corporate customer who can ask for an advertisement message to be printed either directly by the cup manufacturer, automatic vending machine manufacturers or maintenance team of the same within an area, who can print custom designed messages on this space, by buying blank cups from the manufacturers.
- 5 The technical and marketing possibilities offered by this device 1, the thermal protection 2 and its embodiments allow for the creation of new avenues with very high business potentials in a market of an international magnitude, which needs to cut on its cup production cost (increase production rate), if it cannot give a real added value to the current cups. The automatic industrial production of the device described here would result in high production
- 10 rates and therefore the maintenance of the same cost price as that for current cups. Profits linked to the business added value are very attractive to the various stakeholders in this market of automatic vending. The advertisement message that can be very easily exploited and kept is intended for the consumer who takes a drink in a disposable cup. In addition to the formats described above, the generic form 39 (heart shape example, or any other topic,
- 15 depending on the occasion) can use the medium to write a name, etc. for a more festive purpose.

- As shown in figure 1, the device can be a one-piece unit made out of plastic or cardboard (food grade plastic or cardboard). This configuration would have the advantage of allowing
- 20 for easy thermoforming or moulding of the "combined system" in a single operation that is proportional to the plastic or cardboard model of the cup, and the production of large batches at low cost. The mounting of the device on top of the cup rim may be done by a thermal principle in order to better shape the clips.

- 25 Before mounting the cup, the protective foil 2 could be stamped on the front or on both sides.

- It is very obvious that this invention is not limited only to the embodiments described and illustrated above but includes a multiplicity of alternatives such as those covered in the claims appended hereto. In particular, it should be noted that described characteristics of one
- 30 embodiment may be freely combined with the characteristics of another embodiment.